

Appl. No. 10/604,208

Amd. Dated September 9, 2005

Reply to Office Action Dated March 13th, 2005

REMARKS/ARGUMENTS

Claims 1,2 and 4 remain in the pending application. Claims 1,2 and 4 have been rejected. Applicant notes with appreciation that Claim 3 would be allowed if rewritten in independent form. Applicant has, therefore, amended Claim 1 herein to incorporate the limitations of Claim 3. Thus, no new matter has been added by way of this amendment.

Rejection Under 35 USC § 103

The Examiner has rejected Claims 1 and 2 under 35 U.S.C. § 103 based on US Patent 6736221 (Chia et al) in view of US Patent 4804051 (Ho) and US Patent 4263552 (Webber). The Examiner has also rejected Claims 4 under 35 U.S.C. § 103 based on US Patent 6736221 (Chia et al) in view of US Patent 4804051 (Ho) and US Patent 4263552 (Webber) and further view of US Patent 4794534 (Millheim).

Claim 1 now recites a method of predicting the operation of a directional drilling system including the step of calculating the reachability ellipse using the following equations:

$$\begin{aligned} Build = & W_{build} * \left[ \frac{WOB - meanWOB}{meanWOB} \right] + R_{build} * \left[ \frac{ROP - meanROP}{meanROP} \right] + P_{build} * \left[ \frac{Pressure - meanPressure}{meanPressure} \right] \\ & + F_{build} * \left[ \frac{Flow - meanFlow}{meanFlow} \right] + M_{build} * \left[ \frac{RPM - meanRPM}{meanRPM} \right] + T_{build} * \left[ \frac{Torque - meanTorque}{meanTorque} \right] \\ & + I_{build} * \left[ \frac{sin Inc - mean sin Inc}{mean sin Inc} \right] + K_B * [BuildDemand\%] + C_{BT} * [TurnDemand\%] + build_{lim} \end{aligned}$$

and

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$$\begin{aligned}
Turn = & W_{turn} * \left[ \frac{WOB - meanWOB}{meanWOB} \right] + R_{turn} * \left[ \frac{ROP - meanROP}{meanROP} \right] + P_{turn} * \left[ \frac{Pressure - meanPressure}{meanPressure} \right] \\
& + F_{turn} * \left[ \frac{Flow - meanFlow}{meanFlow} \right] + M_{turn} * \left[ \frac{RPM - meanRPM}{meanRPM} \right] + T_{turn} * \left[ \frac{Torque - meanTorque}{meanTorque} \right] \\
& + I_{turn} * \left[ \frac{sinInc - mean sinInc}{mean sinInc} \right] + K_T * [TurnDemand\%] + C_{TB} * [BuildDemand\%] + turn_{bias}
\end{aligned}$$


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These equations are the limitations formerly included in claim 3. Pending claims 2 and 4 are dependent on claim 1 and thus incorporate this limitation. As acknowledged by the examiner Chia fails to disclose the use of such equations. There is nothing in Chia to render obvious the use of such equations.

Applicant submits that Chia fails to anticipate or support a finding of obviousness of any of the now pending claims. Applicant, therefore requests withdrawal of the rejection under 35 U.S.C. § 103.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Applicant believes this reply to be fully responsive to all outstanding issues and place this application in condition for allowance. If this belief is incorrect, or other issues arise, do not hesitate to contact the undersigned at the telephone number listed below.

This paper is submitted in response to the Office Action dated March 18<sup>th</sup> 2005 for which the three-month date for response is June 18th, 2005. A request for a three (3) month extension of the time to respond to the Official Action is hereby made, bringing the date for response to September 19th 2005 (September 18th, 2005 falls on a Sunday). Please apply any charges not covered, such as the three-month extension fee, or any credits, to Deposit Account 50-2898 (Reference Number 92.1004 CIP).

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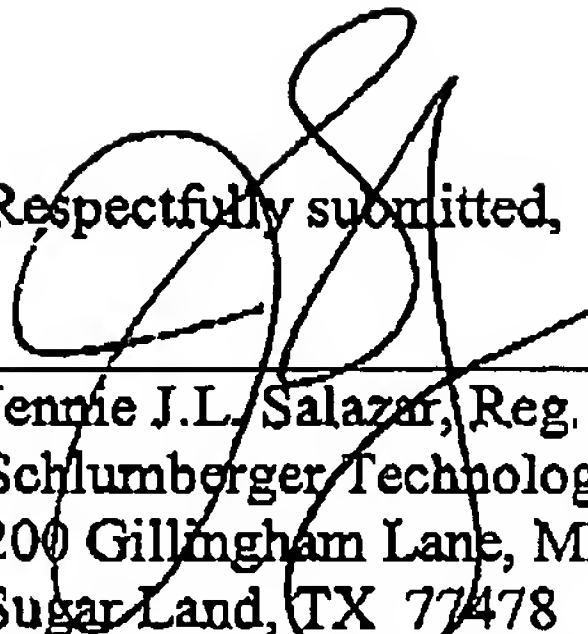
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Date: \_\_\_\_\_

9/9/05

Respectfully submitted,

  
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